



# SEQUENCE LISTING

<110> Hawiger, Daniel  
Steinman, Ralph  
Nussenzweig, Michel

<120> Enhanced Antigen Delivery and Modulation  
of the Immune System Therefrom

<130> 600-1-081CONCIP

<140> 09/925,284

<141> 2001-08-09

<150> 09/586,704

<151> 2000-06-05

<150> 08/381,528

<151> 1995-01-31

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<212> PRT

<213> Homo sapiens

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Gly	Lys	Cys	Ile	Gln	Pro	Leu	Phe	Asp							
			20					25							

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			20					25					30		
Asn	Asp	Pro	Phe	Thr	Ile	Val	His	Glu	Asn	Thr	Gly	Lys	Cys	Ile	Gln
		35					40					45			
Pro	Leu	Ser	Asp	Trp	Val	Val	Ala	Gln	Asp	Cys	Ser	Gly	Thr	Asn	Asn
	50					55					60				
Met	Leu	Trp	Lys	Trp	Val	Ser	Gln	His	Arg	Leu	Phe	His	Leu	Glu	Ser
65					70					75				80	
Gln	Lys	Cys	Leu	Gly	Leu	Asp	Ile	Thr	Lys	Ala	Thr	Asp	Asn	Leu	Arg
			85						90					95	
Met	Phe	Ser	Cys	Asp	Ser	Thr	Val	Met	Leu	Trp	Trp	Lys	Cys	Glu	His
			100					105					110		
His	Ser	Leu	Tyr	Thr	Ala	Ala	Gln	Tyr	Arg	Leu	Ala	Leu	Lys	Asp	Gly
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Tyr	Ala	Val	Ala	Asn	Thr	Asn	Thr	Ser	Asp	Val	Trp	Lys	Lys	Gly	Gly
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Ser	Glu	Glu	Asn	Leu	Cys	Ala	Gln	Pro	Tyr	His	Glu	Ile	Tyr	Thr	Arg
145					150					155					160
Asp	Gly	Asn	Ser	Tyr	Gly	Arg	Pro	Cys	Glu	Phe	Pro	Phe	Leu	Ile	Gly
				165					170					175	
Glu	Thr	Trp	Tyr	His	Asp	Cys	Ile	His	Asp	Glu	Asp	His	Ser	Gly	Pro

			180				185				190					
Trp	Cys	Ala	Thr	Thr	Leu	Ser	Tyr	Glu	Tyr	Asp	Gln	Lys	Trp	Gly	Ile	
		195					200					205				
Cys	Leu	Leu	Pro	Glu	Ser	Gly	Cys	Glu	Gly	Asn	Trp	Glu	Lys	Asn	Glu	
	210					215					220					
Gln	Ile	Gly	Ser	Cys	Tyr	Gln	Phe	Asn	Asn	Gln	Glu	Ile	Leu	Ser	Trp	
225					230					235					240	
Lys	Glu	Ala	Tyr	Val	Ser	Cys	Gln	Asn	Gln	Gly	Ala	Asp	Leu	Leu	Ser	
				245					250					255		
Ile	His	Ser	Ala	Ala	Glu	Leu	Ala	Tyr	Ile	Thr	Gly	Lys	Glu	Asp	Ile	
			260					265					270			
Ala	Arg	Leu	Val	Trp	Leu	Gly	Leu	Asn	Gln	Leu	Tyr	Ser	Ala	Arg	Gly	
		275					280					285				
Trp	Glu	Trp	Ser	Asp	Phe	Arg	Pro	Leu	Lys	Phe	Leu	Asn	Trp	Asp	Pro	
	290					295					300					
Gly	Thr	Pro	Val	Ala	Pro	Val	Ile	Gly	Gly	Ser	Ser	Cys	Ala	Arg	Met	
305					310					315					320	
Asp	Thr	Glu	Ser	Gly	Leu	Trp	Gln	Ser	Val	Ser	Cys	Glu	Ser	Gln	Gln	
				325					330					335		
Pro	Tyr	Val	Cys	Lys	Lys	Pro	Leu	Asn	Asn	Thr	Leu	Glu	Leu	Pro	Asp	
			340					345					350			
Val	Trp	Thr	Tyr	Thr	Asp	Thr	His	Cys	His	Val	Gly	Trp	Leu	Pro	Asn	
		355					360					365				
Asn	Gly	Phe	Cys	Tyr	Leu	Leu	Ala	Asn	Glu	Ser	Ser	Ser	Trp	Asp	Ala	
	370					375					380					
Ala	His	Leu	Lys	Cys	Lys	Ala	Phe	Gly	Ala	Asp	Leu	Ile	Ser	Met	His	
385					390					395					400	
Ser	Leu	Ala	Asp	Val	Glu	Val	Val	Val	Thr	Lys	Leu	His	Asn	Gly	Asp	
				405					410					415		
Val	Lys	Lys	Glu	Ile	Trp	Thr	Gly	Leu	Lys	Asn	Thr	Asn	Ser	Pro	Ala	
			420				425						430			
Leu	Phe	Gln	Trp	Ser	Asp	Gly	Thr	Glu	Val	Thr	Leu	Thr	Tyr	Trp	Asn	
		435				440					445					
Glu	Asn	Glu	Pro	Ser	Val	Pro	Phe	Asn	Lys	Thr	Pro	Asn	Cys	Val	Ser	
	450					455					460					
Tyr	Leu	Gly	Lys	Leu	Gly	Gln	Trp	Lys	Val	Gln	Ser	Cys	Glu	Lys	Lys	
465					470					475					480	
Leu	Arg	Tyr	Val	Cys	Lys	Lys	Lys	Gly	Glu	Ile	Thr	Lys	Asp	Ala	Glu	
				485					490					495		
Ser	Asp	Lys	Leu	Cys	Pro	Pro	Asp	Glu	Gly	Trp	Lys	Arg	His	Gly	Glu	
			500					505					510			
Thr	Cys	Tyr	Lys	Ile	Tyr	Glu	Lys	Glu	Ala	Pro	Phe	Gly	Thr	Asn	Cys	
		515					520					525				
Asn	Leu	Thr	Ile	Thr	Ser	Arg	Phe	Glu	Gln	Glu	Phe	Leu	Asn	Tyr	Met	
	530					53										

Asp	Pro	Cys	Pro	Glu 645	Gly	Trp	His	Thr	Phe 650	Pro	Ser	Ser	Leu	Ser	Cys
Tyr	Lys	Val	Phe 660	His	Ile	Glu	Arg	Ile	Val	Arg	Lys	Arg	Asn	Trp	Glu
Glu	Ala	Glu	Arg	Phe 675	Cys	Gln	Ala	Leu	Gly	Ala	His	Leu	Pro	Ser	Phe
Ser	Arg	Arg	Glu	Glu	Ile	Lys 695	Asp	Phe	Val	His	Leu	Leu	Lys	Asp	Gln
Phe 705	Ser	Gly	Gln	Arg	Trp 710	Leu	Trp	Ile	Gly	Leu	Asn	Lys	Arg	Ser	Pro
Asp	Leu	Gln	Gly	Ser 725	Trp	Gln	Trp	Ser	Asp 730	Arg	Thr	Pro	Val	Ser	Ala
Val	Met	Met	Glu 740	Pro	Glu	Phe	Gln	Gln	Asp 745	Phe	Asp	Ile	Arg	Asp	Cys
Ala	Ala	Ile	Lys 755	Val	Leu	Asp	Val	Pro	Trp	Arg	Arg	Val	Trp	His	Leu
Tyr	Glu	Asp	Lys	Asp	Tyr	Ala 775	Tyr	Trp	Lys	Pro	Phe	Ala	Cys	Asp	Ala
Lys 785	Leu	Glu	Trp	Val	Cys 790	Gln	Ile	Pro	Lys	Gly	Ser	Thr	Pro	Gln	Met
Pro	Asp	Trp	Tyr	Asn 805	Pro	Glu	Arg	Thr	Gly 810	Ile	His	Gly	Pro	Pro	Val
Ile	Ile	Glu	Gly 820	Ser	Glu	Tyr	Trp	Phe	Val 825	Ala	Asp	Pro	His	Leu	Asn
Tyr	Glu	Glu	Ala 835	Val	Leu	Tyr	Cys	Ala	Ser	Asn	His	Ser	Phe	Leu	Ala
Thr	Ile	Thr	Ser	Phe	Thr	Gly 855	Leu	Lys	Ala	Ile	Lys	Asn	Lys	Leu	Ala
Asn 865	Ile	Ser	Gly	Glu	Glu 870	Gln	Lys	Trp	Trp	Val	Lys	Thr	Ser	Glu	Asn
Pro	Ile	Asp	Arg	Tyr 885	Phe	Leu	Gly	Ser	Arg 890	Arg	Arg	Arg	Leu	Trp	His
Phe	Pro	Met	Thr 900	Phe	Gly	Asp	Glu	Cys	Leu 905	His	Met	Ser	Ala	Lys	Thr
Trp	Leu	Val 915	Asp	Leu	Ser	Lys	Arg	Ala	Asp	Cys	Asn	Ala	Lys	Leu	Pro
Phe	Ile	Cys	Glu	Arg	Tyr	Asn 935	Val	Ser	Ser	Leu	Glu	Lys	Tyr	Ser	Pro
Asp 945	Pro	Ala	Ala	Lys	Val 950	Gln	Cys	Thr	Glu	Lys	Trp	Ile	Pro	Phe	Gln
Asn	Lys	Cys	Phe	Leu 965	Lys	Val	Asn	Ser	Gly 970	Pro	Val	Thr	Phe	Ser	Gln
Ala	Ser	Gly	Ile 980	Cys	His	Ser	Tyr	Gly	Gly 985	Thr	Leu	Pro	Ser	Val	Leu
Ser	Arg	Gly	Glu	Gln	Asp	Phe	Ile	Ile	Ser	Leu	Leu	Pro	Glu	Met	Glu
Ala	Ser	Leu	Trp	Ile	Gly	Leu	Arg	Trp	Thr	Ala	Tyr	Glu	Arg	Ile	Asn
Arg 1025	Trp	Thr	Asp	Asn	Arg	Glu	Leu	Thr	Tyr	Ser	Asn	Phe	His	Pro	Leu
Leu	Val	Gly	Arg	Arg	Leu	Ser	Ile	Pro	Thr	Asn	Phe	Phe	Asp	Asp	Glu
Ser	His	Phe	His 1060	Cys	Ala	Leu	Ile	Leu	Asn 1065	Leu	Lys	Lys	Ser	Pro	Leu
Thr	Gly	Thr	Trp	Asn	Phe	Thr	Ser	Cys	Ser	Glu	Arg	His	Ser	Leu	Ser
Leu	Cys	Gln	Lys	Tyr	Ser	Glu	Thr	Glu	Asp	Gly	Gln	Pro	Trp	Glu	Asn

1090	1095	1100
Thr Ser Lys Thr Val	Lys Tyr Leu Asn Asn	Leu Tyr Lys Ile Ile Ser
1105	1110	1115
Lys Pro Leu Thr Trp	His Gly Ala Leu Lys	Glu Cys Met Lys Glu Lys
1125	1130	1135
Met Arg Leu Val Ser	Ile Thr Asp Pro Tyr	Gln Gln Ala Phe Leu Ala
1140	1145	1150
Val Gln Ala Thr Leu	Arg Asn Ser Ser Phe	Trp Ile Gly Leu Ser Ser
1155	1160	1165
Gln Asp Asp Glu Leu	Asn Phe Gly Trp Ser	Asp Gly Lys Arg Leu Gln
1170	1175	1180
Phe Ser Asn Trp Ala	Gly Ser Asn Glu Gln	Leu Asp Asp Cys Val Ile
1185	1190	1195
Leu Asp Thr Asp Gly	Phe Trp Lys Thr Ala	Asp Cys Asp Asp Asn Gln
1205	1210	1215
Pro Gly Ala Ile Cys	Tyr Tyr Pro Gly Asn	Glu Thr Glu Glu Glu Val
1220	1225	1230
Arg Ala Leu Asp Thr	Ala Lys Cys Pro Ser	Pro Val Gln Ser Thr Pro
1235	1240	1245
Trp Ile Pro Phe Gln	Asn Ser Cys Tyr Asn	Phe Met Ile Thr Asn Asn
1250	1255	1260
Arg His Lys Thr Val	Thr Pro Glu Glu Val	Gln Ser Thr Cys Glu Lys
1265	1270	1275
Leu His Pro Lys Ala	His Ser Leu Ser Ile	Arg Asn Glu Glu Glu Asn
1285	1290	1295
Thr Phe Val Val Glu	Gln Leu Leu Tyr Phe	Asn Tyr Ile Ala Ser Trp
1300	1305	1310
Val Met Leu Gly Ile	Thr Tyr Glu Asn Asn	Ser Leu Met Trp Phe Asp
1315	1320	1325
Lys Thr Ala Leu Ser	Tyr Thr His Trp Arg	Thr Gly Arg Pro Thr Val
1330	1335	1340
Lys Asn Gly Lys Phe	Leu Ala Gly Leu Ser	Thr Asp Gly Phe Trp Asp
1345	1350	1355
Ile Gln Ser Phe Asn	Val Ile Glu Glu Thr	Leu His Phe Tyr Gln His
1365	1370	1375
Ser Ile Ser Ala Cys	Lys Ile Glu Met Val	Asp Tyr Glu Asp Lys His
1380	1385	1390
Asn Gly Thr Leu Pro	Gln Phe Ile Pro Tyr	Lys Asp Gly Val Tyr Ser
1395	1400	1405
Val Ile Gln Lys Lys	Val Thr Trp Tyr Glu	Ala Leu Asn Ala Cys Ser
1410	1415	1420
Gln Ser Gly Gly Glu	Leu Ala Ser Val His	Asn Pro Asn Gly Lys Leu
1425	1430	1435
Phe Leu Glu Asp Ile	Val Asn Arg Asp Gly	Phe Pro Leu Trp Val Gly
1445	1450	1455
Leu Ser Ser His Asp	Gly Ser Glu Ser Ser	Phe Glu Trp Ser Asp Gly
1460	1465	1470
Arg Ala Phe Asp Tyr	Val Pro Trp Gln Ser	Leu Gln Ser Pro Gly Asp
1475	1480	1485
Cys Val Val Leu Tyr	Pro Lys Gly Ile Trp	Arg Arg Glu Lys Cys Leu
1490	1495	1500
Ser Val Lys Asp Gly	Ala Ile Cys Tyr Lys	Pro Thr Lys Asp Lys Lys
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Leu Ile Phe His Val	Lys Ser Ser Lys Cys	Pro Val Ala Lys Arg Asp
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Gly Pro Gln Trp Val	Gln Tyr Gly Gly His	Cys Tyr Ala Ser Asp Gln
1540	1545	1550

Val	Leu	His	Ser	Phe	Ser	Glu	Ala	Lys	Gln	Val	Cys	Gln	Glu	Leu	Asp	1555	1560	1565
His	Ser	Ala	Thr	Val	Val	Thr	Ile	Ala	Asp	Glu	Asn	Glu	Asn	Lys	Phe	1570	1575	1580
Val	Ser	Arg	Leu	Met	Arg	Glu	Asn	Tyr	Asn	Ile	Thr	Met	Arg	Val	Trp	1585	1590	1595
Leu	Gly	Leu	Ser	Gln	His	Ser	Leu	Asp	Gln	Ser	Trp	Ser	Trp	Leu	Asp	1605	1610	1615
Gly	Leu	Asp	Val	Thr	Phe	Val	Lys	Trp	Glu	Asn	Lys	Thr	Lys	Asp	Gly	1620	1625	1630
Asp	Gly	Lys	Cys	Ser	Ile	Leu	Ile	Ala	Ser	Asn	Glu	Thr	Trp	Arg	Lys	1635	1640	1645
Val	His	Cys	Ser	Arg	Gly	Tyr	Ala	Arg	Ala	Val	Cys	Lys	Ile	Pro	Leu	1650	1655	1660
Ser	Pro	Asp	Tyr	Thr	Gly	Ile	Ala	Ile	Leu	Phe	Ala	Val	Leu	Cys	Leu	1665	1670	1675
Leu	Gly	Leu	Ile	Ser	Leu	Ala	Ile	Trp	Phe	Leu	Leu	Gln	Arg	Ser	His	1685	1690	1695
Ile	Arg	Trp	Thr	Gly	Phe	Ser	Ser	Val	Arg	Tyr	Glu	His	Gly	Thr	Asn	1700	1705	1710
Glu	Asp	Glu	Val	Met	Leu	Pro	Ser	Phe	His	Asp						1715	1720	